AD-A247 908

UNITED STATES ARMY

HEALTH CARE STUDIES AND
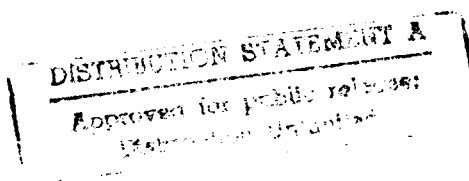
CLINICAL INVESTIGATION ACTIVITY
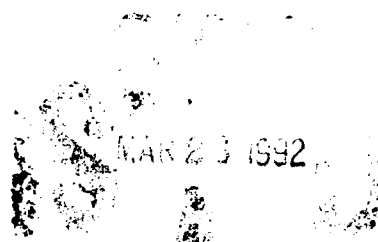
MAR 2 3 1992

DEVELOPMENT OF A LABOR &
DELIVERY NURSING PATIENT CLASSIFICATION
SYSTEM: THE INDIRECT CARE COMPONENT

LTC Ruth E. Rea, AN, USA
COL Bonnie L. M. Jennings, AN, USA
LTC John L. Carty, AN, USA
LTC Karen A. Seipp, AN, USA

UNITED STATES ARMY

HEALTH SERVICES COMMAND

FORT SAM HOUSTON, TEXAS 78234

92   3 23 060

92-07284

NOTICE

The findings in this report are
not to be construed as an official
Department of the Army position
unless so designated by other
authorized documents.

* *

Regular users of services of the Defense Technical Information Center
(per DOD Instruction 5200.21) may purchase copies directly from the
following:

All other requests for these reports will be directed to the following:

U

REPORT DOCUMENTATION PAGE	Form Approved OMB No. 0704-0188

1a. REPORT SECURITY CLASSIFICATION Unclassified	1b. RESTRICTIVE MARKINGS

2a. SECURITY CLASSIFICATION AUTHORITY	3. DISTRIBUTION/AVAILABILITY OF REPORT Distribution unlimited; Approved for Public Release.
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE	

4. PERFORMING ORGANIZATION REPORT NUMBER(S) HR 91-005A	5. MONITORING ORGANIZATION REPORT NUMBER(S)

6a. NAME OF PERFORMING ORGANIZATION U.S. Army Health Care Studies & Clinical Investigation Acty	6b. OFFICE SYMBOL (If applicable) HSHN-A	7a. NAME OF MONITORING ORGANIZATION U.S. Army Health Professional Support Agency Nurse Consultant (SGPS-CP-N)

6c. ADDRESS (City, State, and ZIP Code) Bldg 2268 Fort Sam Houston, TX 78234-6060	7b. ADDRESS (City, State, and ZIP Code) Rm 603, Skyline Five, 5111 Leesburg Pike Falls Church, VA 22041-3258

8a. NAME OF FUNDING/SPONSORING ORGANIZATION	8b. OFFICE SYMBOL (If applicable)	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER

8c. ADDRESS (City, State, and ZIP Code)	10 SOURCE OF FUNDING NUMBERS

	PROGRAM ELEMENT NO.	PROJECT NO.	TASK NO.	WORK UNIT ACCESSION NO.

11. TITLE (Include Security Classification) (U) Development of a Labor & Delivery Nursing Patient
Classification System: The Indirect Care Component (Executive Summary)

12. PERSONAL AUTHOR(S) LTC Ruth E. Rea, COL Bonnie L.M. Jennings, LTC John L. Carty,
and LTC Karen A. Seipp

13a. TYPE OF REPORT Final Report	3b. TIME COVERED FROM 1989 TO 1991	14. DATE OF REPORT (Year, Month, Day) October 1991	15. PAGE COUNT 12

16. SUPPLEMENTARY NOTATION

17. COSATI CODES			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)
FIELD	GROUP	SUB-GROUP	Staffing Standard; Nursing; Indirect Care Proportions; Labor & Delivery; Work Sampling

19. ABSTRACT (Continue on reverse if necessary and identify by block number)

The purpose of this study was to determine the Indirect Care time (including Nonproductive time) expressed as a proportion of Available time; this eventually will be combined with Direct Care time and Unavailable for Care time to determine nursing requirements consistent with currently accepted nurse staffing standards methodology. To determine the Indirect Care and Nonproductive proportions for the Army L&D nursing units, a stratified work sampling design was used. Using weighted stratified sampling, the required sample size of 8 sites was selected from the low, medium, and high workload strata proportionate to the number of sites from the total universe that occured within each stratum. Using 5% accuracy (95% confidence interval length) and .65 as an approximation of the Indirect Care time proportion, it was estimated that at least 364 data point per site were required. Actual sample size resulted in an accuracy of at least 4.3%. Data collection was distributed over a work cycle for L&D, defined as one week of the measured unit's hours of operation. A minimum of one observation session per hour and a maximum of six observation sessions per

20. DISTRIBUTION/AVAILABILITY OF ABSTRACT ☒ UNCLASSIFIED/UNLIMITED ☐ SAME AS RPT ☐ DTIC USERS	21 ABSTRACT SECURITY CLASSIFICATION Unclassified
22a. NAME OF RESPONSIBLE INDIVIDUAL Ruth E. Rea, LTC, AN	22b TELEPHONE (Include Area Code) (206) 967-6813	22c OFFICE SYMBOL HSHJ-NESD

DD Form 1473, JUN 86   Previous editions are obsolete.   SECURITY CLASSIFICATION OF THIS PAGE
U

19. ABSTRACT: (cont'd)

hour were scheduled to insure representative sampling of nursing activities throughout the day. Upon analysis of the collected data, it was found that each of the workload stratum-specific proportions was within 2% of the overall combined Indirect and Nonproductive time proportions of 71.1%. Using the criteria of accuracy and ease of use, the findings from this study recommend that a combined Indirect Care and Nonproductive proportion of 71.1% (based upon Available time and with the head nurse, wardmaster, and ward clerk positions considered as directed requirements) be used to develop the L&D staffing standards.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS

Many individuals contributed significantly to the successful completion of this study and include the following:

o   The nursing staff at the data collection sites who continued their normal nursing activities while being randomly observed.

o   Ms. Yolonda Miller, librarian, who provided library support services in a thorough and timely manner.

o   Dr. Sondra T. Perdue, statistical consultant, whose expertise facilitated sound research methods.

o   Madigan Army Medical Center's Department of Nursing for support during the final completion of this report.

DEVELOPMENT OF A LABOR & DELIVERY NURSING PATIENT CLASSIFICATION SYSTEM: THE INDIRECT CARE COMPONENT
EXECUTIVE SUMMARY

Background

Within the tri-service health care arena, staffing methodology has evolved from subjective analysis by manpower experts (e.g., manpower teams) to more objective staffing standards that quantitatively express manpower requirements as a function of variable workload. Labor and Delivery staffing is presently based upon number of live births rather than a patient acuity-based nurse staffing standard.

Purpose

The purpose of this study was to determine the Indirect Care time (including Nonproductive time) expressed as a proportion of Available time; this eventually will be combined with Direct Care time and Unavailable for Care time to determine nursing requirements consistent with currently accepted nurse staffing standards methodology. The original Army indirect nursing care study was done by Misener, Frelin, and Twist in 1983. With knowledge of Misener et al.'s definitions and in light of the impact of subsequent manpower regulatory changes, the present study defined terms to insure consistency with Misener et al.'s definitions wherever feasible.

Research Questions

Two specific research questions were answered in this study. They are as follows:

1)   What are the Indirect Care and Nonproductive
proportions of Available time for L&D units?

2)   Do these Indirect Care and Nonproductive proportions of
Available time differ by workload strata?

Study Design

To determine the Indirect Care and Nonproductive proportions
for the Army Labor and Delivery (L&D) nursing units, a stratified
work sampling design was used. Only L&D units with their own
dedicated staffing and which were CONUS locations were considered
as potential data collection sites. Using weighted stratified
sampling, the required sample size of eight sites was selected
from the low, medium, and high workload strata proportionate to
the number of sites from the total universe that occurred within
each stratum.

The required number of observations to be made at each
selected site in the sample was determined by both the desired
level of accuracy of the measured proportions and the proportion
of occurrence for the largest category of time to be observed.
Using 5% accuracy (95% confidence interval length) and .65 as an
approximation of the Indirect Care time proportion, the largest
proportion to be estimated, it was estimated that at least 364
data points per site were required. To insure that 364 usable
data points were obtained, work sampling activities were
scheduled to collect 600 observations at each site. Data
collection was distributed over a work cycle for L&D, defined as
one week of the measured unit's hours of operation. Prior to

2

data collection, the number of observation sessions as well as random start times were established for each site. A minimum of one observation session per hour (to allow sampling during all the hours of operation) and a maximum of six observation sessions per hour (to preclude continuous observation) were scheduled to insure representative sampling of nursing activities throughout the day. Times were predetermined prior to data collection with a new set of times systematically selected for each day of the work cycle, and a data collection form was generated for each hour of the collection period.

To establish the validity of the Work Sampling Data Collection Form used in this study, the instrument was reviewed by three nurse researchers. This form was further reviewed by nurses from each of the services and from the Office of the Assistant Secretary Defense, Health Affairs [OASD(HA)] to insure completeness of the form and compatibility with service-specific requirements. The instrument was then successfully pilot tested at the first data collection site.

Data collectors were trained in a three-day program that included presentation of didactic information, execution of practical exercises, actual data collection, and use of an videotape of observation sessions for testing. A criterion of 90% accuracy on that test was required to be a data collector.

Results

In the following discussion, Total time refers to all observations, Available time refers to Total time minus the Unavailable for Care time. Available time is further divided into Direct Care time, Indirect Care time, and Nonproductive time. The proportions for each nursing staff type are virtually the same for Available time as for Total time, with the primary shifts being a decrease of .5% in ward clerks and an increase of .6% in LPNs. Details of Available time stratified by site workload show that the low workload sites did not have ward clerks on the units and had substantially fewer LPN observations, balanced by greater numbers of RN observations. Some differences in proportions of time by workload strata were found, but could be accounted for primarily by the absence of ward clerks in the low workload sites and by differences in Nonproductive time. Times were computed for various nursing staff mixes, including a) all staff, b) excluding head nurse and wardmaster, and c) excluding head nurse, wardmaster, and ward clerk.

Conclusions

Indirect Care and Nonproductive times accounted for 71% to 74%, depending on the nursing staff mix, with Indirect Care alone accounting for 51% to 55%. Each of the workload stratum-specific proportions was within 2% of the overall combined Indirect Care and Nonproductive time proportion of 71.1%. Using the criteria of accuracy and ease of use, the following approaches are suggested by which to derive the proportion desired from this

4

study. First, Available time rather than Total time should be used as the basis of deriving the Indirect Care proportion because this facilitates creation of a staffing standard using the Manpower Availability Factor. Second, the contribution of the head nurse, wardmaster, and ward clerk should be eliminated from Available time. Third, both the Indirect Care proportion and the Nonproductive proportion should be combined to give a single "nondirect" care proportion.

Recommendations

1. Using Available time and eliminating three positions (head nurse, wardmaster, and ward clerk), the combined Indirect Care and Nonproductive proportion of 71.1% should be used to develop the L&D staffing standard. This recommendation assumes that sufficient workload is present to require staffing at a higher level than that associated with directed requirements (head nurse, wardmaster or ward clerk).

2. The impact of non-nursing activities on nurse staffing requirements should be further evaluated.

3. Because all required elements are now known, a L&D staffing standard should be immediately developed. Part of this development process should consider basing staffing upon other than mean acuity times. Analysis should be conducted to determine at which acuity level risk management is minimized while productivity is maximized. This analysis is especially critical in units like L&D in which it is very difficult to move staff from other areas to assist with peaks in workload.

5

Selected References

Misener, T., Frelin, A. J. & Twist, P. (1983). <u>Time Spent in Indirect Nursing Care</u>. Report 83-004. Ft. Sam Houston, TX: U. S. Army Health Services Command.

DISTRIBUTION:

Defense Technical Information Center, Cameron Station, ATTN: DTIC-OCC, Alexandria, VA 22304-6145 (2)

Defense Logistics Studies Information Exchange, U.S. Army Logistics Management College, ATTN: ATSZ-DL, Fort Lee, VA 23801-6043 (1)

Director Joint Medical Library, DASG-AAFJML, Offices of The Surgeons General, Room 670, 5109 Leesburg Pike, Falls Church, VA 20310 (1)

Stimson Library, Academy of Health Sciences, Bldg 2840, Fort Sam Houston, TX 78234 (1)

HQDA, (DASG-CN), ATTN: BG Nancy Adams, Room 623, Skyline Five, 511 Leesburg Pike, Falls Church, VA 22041-3258 (1)

HQDA, (DASG-CP-N), ATTN: COL Bonnie Jennings, Room 603, Skyline Five, 5111 Leesburg Pike, Falls Church, VA 22041-3258 (1)

HQDA, (DASG-HCD-D), 5109 Leesburg Pike, Falls Church, VA 22041-3258 (1)

U.S. Army, Health Services Command (HSCL-N), ATTN: COL Carole Burke, Fort Sam Houston, TX 78234-6000 (1)

OASD (HA), ATTN: HSO/OMS (Mr. Ken Cox), The Pentagon, Room 3E-343, Washington, DC 20301-1200 (1)

OASD (HA), ATTN: HSO/OMS (LTC Betty Jones), The Pentagon, Room 3E-343, Washington, DC 20301-1200 (1)

HQDA, (DASG-HCM) OTSG Manpower Program Division, ATTN: LTC Rhonda Graves, Room 557, Skyline Five, 5111 Leesburg Pike, Falls Church, VA 22041-3258 (1)

HQ USAF/SGN, ATTN: COL Kathleen Gardon, Bolling Air Force Base, Washington, DC 20332 (1)

Bureau of Medicine and Surgery, (MED 154), ATTN: LCDR Penny Turner, Washington, DC 20372-5000 (1)

HQDA (DASG-CN), ATTN: COL Terris Kennedy, Room 623, Skyline Five, 5111 Leesburg Pike, Falls Church, VA 22041-3258 (1)